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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/621,110 | 07/21/2000 | Charles Cohn | 6-4 | 4412 |

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Docket Administrator Romm 3C-512
Lucent Technologies Inc
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EXAMINER

LUU, CHUONG A

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2825

DATE MAILED: 05/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/621,110

Applicant(s)

COHN ET AL.

Examiner

Chuong A Luu

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-16 is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

PRIOR ART REJECTIONS

Statutory Basis

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The Rejections

Claims 1, 6-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamasaki et al. (U.S. 6,077,728)

Yamasaki discloses a method of producing a ceramic package main body by **(1); (7)** (a) forming a substrate (1) having a first dielectric layer (2), a conductive layer (3) having a first region insulated from a second region and located above the first dielectric layer (2), and a second dielectric layer (1a) above the conductive layer (3), the second dielectric layer (1a) having a cavity wherein the first and second regions are exposed with the cavity; (b) interconnecting (12)a first lead of an integrated circuit to the first exposed region and interconnecting a second lead of the integrated circuit to the exposed second region (see Figures 1, 7);

(6) further comprising forming multiple interconnections between the integrated circuit chip and the conductive layer (see Figure 1);

(8) wherein steps (a), (b), and (c) occur prior to step (d) (see Figure 1);

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamasaki et al. (U.S. 6,077,728) in view of Plepys et al. (U.S. 6,140,707)

Yamasaki teaches the above outlined features except for bond pad. However, Plepys discloses a low-cost integrated circuit package with **(2)** wherein step (b) comprises: coupling a conductor to a bond pad (36) formed on the integrated circuit (32); connecting the conductor directly to the conductive layer (56). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to

combine the above teachings to manufacture a semiconductor interconnection to improve its performance.

Claims 3-5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamasaki et al. (U.S. 6,077,728) in view of Ma (U.S. 6,022,787)

Yamasaki teaches everything above except for ground and power, and signal line. However, Ma disclose a method of making an integrated circuit with **(3)** further comprising providing one of a ground plane and a power plane in the exposed portion of the conductive layer; **(4)** further comprising providing at least one connection for a signal line in the exposed portion of the conductive layer; **(5)** further comprising providing at least one connection for a signal line in the exposed portion of the conductive layer; **(9)** further comprising: providing a contact area to a ground plane by exposing the portion of the conductive layer (see columns 4, 9, lines 33-43, lines 15-30, respectively). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the above teachings to manufacture a semiconductor interconnection to improve its performance.

Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamasaki et al. (U.S. 6,077,728) in view of Caillat et al. (U.S. 5,861,322)

Yamasaki teaches the above outlined features except for forming plated through holes in the substrate. However, Caillat discloses a process for manufacturing an interconnection substrate (see column 2, lines 1-36. Figure 9). It would have been

Art Unit: 2825

obvious to one of ordinary skill in the art at the time of the invention was made to combine the above teachings to manufacture a semiconductor interconnection to improve its performance.

Allowable Subject Matter

Claims 13-16 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The prior art does not disclose or suggest inter alia the limitations "forming a second conductive layer above the second dielectric layer and forming a cavity in the first region of the second dielectric layer to expose the first and second regions of the first conductive layer and coupling a first lead of the integrated circuit to the exposed first region and a second lead of the integrated circuit to the exposed second region".

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

Art Unit: 2825

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong A Luu whose telephone number is (703)305-0129. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on (703)308-1323. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Chuong Anh Luu
Assistant Examiner

CAL
April 26, 2002

C. Everhart
CARIDAD EVERHART
PRIMARY EXAMINER